National Vector Borne Diseases Control Program

Public Health Resource Network
Learning objectives

- Basics of Malaria - the disease
- Components of Malaria control program
- How to prepare a District Malaria Action Plan
6 diseases under NVBDCP

1. Malaria  2. Filaria  3. Chikungunya
Global Scenario

- 40% of the world’s population under threat
- Annually 300-500 million clinical cases and 1 million deaths
- Pregnant women and children under five are the most vulnerable.
- Loss of productivity, and high school dropouts
- Malaria and poverty are interrelated in a vicious cycle
Malaria and India

- Highest cases and 2nd highest deaths in SEAR
- Northeast states, West Bengal, Orissa and central India (CG, Jharkhand) contribute 80% of cases
In Orissa

<table>
<thead>
<tr>
<th>Major Parasites</th>
<th>India</th>
<th>Orissa</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. vivax</td>
<td>&gt;60%</td>
<td>&lt;15%</td>
</tr>
<tr>
<td>P. falciparum</td>
<td>≥ 40%</td>
<td>&gt;85%</td>
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Major Vectors

- An. culicifacies
- An. fluviatilis
Malaria transmission

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Conducive climatic factors

- June to December
- Temp: 15 to 37°C
- Humidity: 50 to 90%
- Rainfall: 21 to 260 mm
# Malaria epidemiological indicators

**ABER : (Annual blood examination rate)**

\[
\frac{\text{No. of blood smears collected during the year}}{\text{Population covered under surveillance}} \times 100
\]

**SPR: (Slide positivity rate)**

\[
\frac{\text{No. of blood smears found positive for malaria parasite}}{\text{No. of blood smears examined}} \times 100
\]

**SFR: (Slide falciparum rate)**

\[
\frac{\text{No. of blood smears found positive for P. falciparum}}{\text{No. of blood smears examined}} \times 100
\]
P.f %: (P.falciparum percentage)

\[
\text{No. of blood smears found positive for } P. \text{ falciparum} \times 100
\]

No. of blood smears found positive for malaria parasite

API: (Annual parasite incidence)

\[
\text{No. of blood smears found positive for malaria parasite} \times 1000
\]

Total population under surveillance
High risk area - criteria

1) Recorded deaths due to malaria (clinical/microscopic) during any of the last 3 years with evidence of locally acquired infection in an endemic area

2) Doubling of SPR: during last 3 years provided the SPR in 2nd and 3rd year reaches 4% or more and where SPR does not show the doubling trend as above but the average SPR of the last 3 years is 5% or more

3) Falciparum proportion is 30% or more provided the SPR is 3% or more during any of the last three years

4) Any area having a focus of chloroquine resistant to P. falciparum

5) Tropical aggregation of laborers in project areas and new settlement in endemic/receptive and vulnerable areas
Illness of fever

Typical features:

Fever with chills - daily/alternate day

- Fever is associated generally with headache and vomiting
- Fever comes down with profuse sweating
- Leaves the patient with generalized weakness and discomfort
Typical malaria may not be seen always

- Hence whenever a case of fever is seen without any other signs/symptoms such as rash /diarrhea /cough etc. it may be thought in the line of malaria
- Hence early diagnosis (Microscopy/RDK if not possible then clinical) and complete treatment for malaria is advocated
4 major strategies to control malaria

1. Early diagnosis and complete treatment (EDCT)
2. Integrated vector control (IVC) measures
3. Behavior change communication (BCC)
4. Capacity building
Early Diagnosis and Complete Treatment

- Anti-malarials are available at the community level - FTD/DDC, Sub-centers besides PHCs/CHCs & hospitals
- Irrespective of age and sex full course (three days) Chloroquine (CQ)/ACT is given after taking the blood film
- Pregnant women CQ is given (No ACT & PQ)
- Complicated cases are treated with quinine
In high risk areas

Malaria in these areas may be life threatening
Hence radical treatment (RT) is given
(Chloroquine 3 days + Primaquine single dose on the 1\textsuperscript{st} day)

What these drugs do?
- Chloroquine kills the parasite in the blood and relieves the patient
- Primaquine kills the gametocytes and checks the transmission
Under NVBDCP
Following antimalaria measures provided by Govt. Health Facilities

Blood smear (BS) collection and examination

- MPHW/ANM/FTD/collect BS from fever cases
- Prepare thick and thin smears
- Send to malaria microscopy centre
Red blood cells are affected by the malaria parasite.

Other facility for blood examination is Rapid diagnostic test (RDT) by RDK.

RDK is supplied to remote inaccessible areas. With short training one can conduct this simple procedure. Maximum 15 minutes is needed to get the result.
Give Radical treatment (RT), If the blood smear found to be positive for malaria

For RT both Chloroquine and Primaquine (CQ + PQ) are given

Combi-blister packs are available for adult patients

PQ is not to be given to Pregnant women and infants

Antimlarial given free of cost

Caution: Don’t give in empty stomach
Integrated vector control

1. Anti-larval measures
   - Source reduction
   - Chemical control
   - Biological control

2. Anti-Adult measures
   - IRS (Indoor Residual Spray)
   - Space spray

3. Personal prophylactic measures
   - Use of repellants
   - Use of Insecticide treated mosquito nets (ITMN)

4. Environmental engineering
Eliminate breeding sources
Larvivorous fish: Guppy and Gambusia
Vector control through IRS

- Malaria cases increase during rainy and after rainy seasons
- Hence we do IRS before rainy season (by May 15\textsuperscript{th}) and after rainy season (by 15\textsuperscript{th} Sept)
- We must know and communicate the correct message to the community on IRS
Insecticide treated bed nets

If adequate number of nets are not available in the family then on priority basis protect the pregnant mother and children.

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Behavior Change Communication

Objectives:

1. Awareness generation
2. Demand generation
3. Behavior change
4. Community participation
Remember

Serious malaria patients may have any of the following symptoms:

- Patient is abnormally sleepy
- Difficult to wake or confused
- Patient is unable to stand or sit

With negligence patient may die
Awareness on following points:

- Fever is the main symptom
- How to suspect complicated malaria
- Mode of spread of malaria is by mosquito
- Stagnant water as source of mosquito breeding
We have to communicate:

- Importance of EDCT
- Harmful impact of not getting timely treatment
- Drug compliance
- Early referral of severe cases
- Integrated vector control measures
Gaps and Constraints

- Rise in Pf%
- Availability of drugs
- Drug resistance
- Awareness
- Community participation
Let us protect the most vulnerable

[Image of a pregnant woman and two young children]
Thanks